East St. Louis and Vicinity Flood Control


and
Ecosystem Restoration

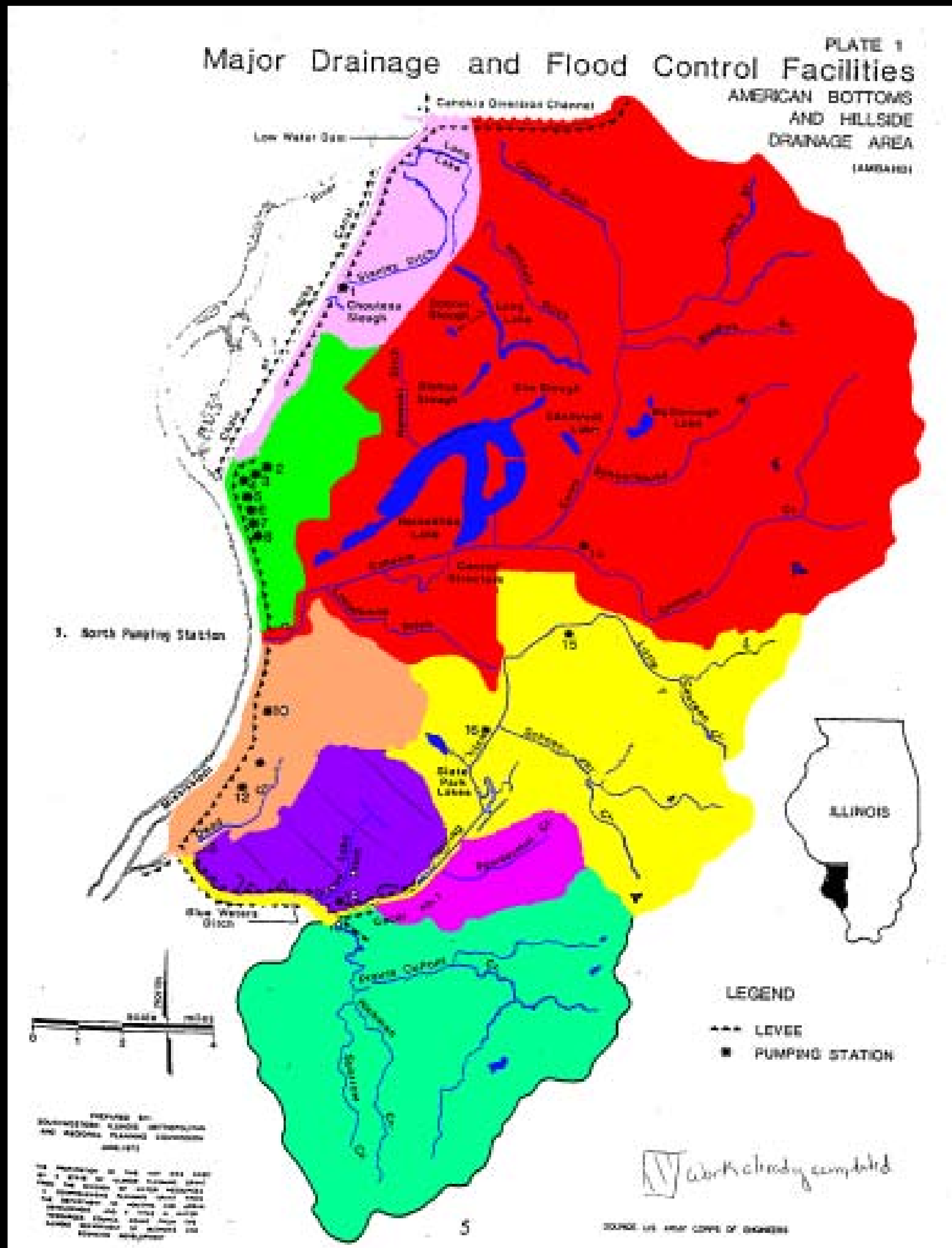


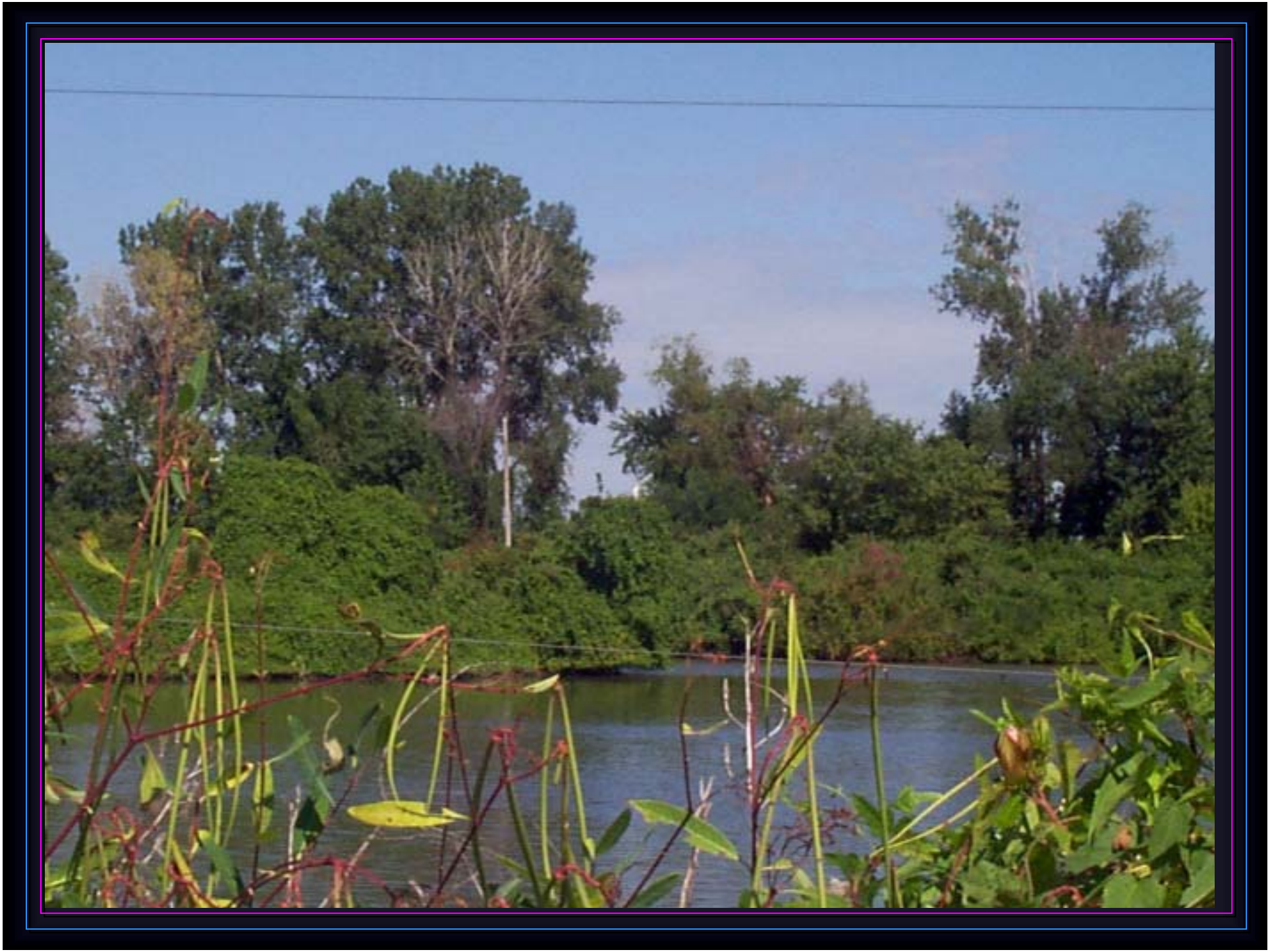
PLATE 1
Major Drainage and Flood Control Facilities
AMERICAN BOTTOMS
AND HILLSIDE
DRAINAGE AREA
Cahokia Diversion Channel
Low Water Dam
North Pumping Station
ILLINOIS
LEGEND
LEVEE
PUMPING STATION
scale miles
0 1 2 3 4
north
Work already completed
5

Background

- 1965 Flood Control Act authorized the Corps to look for solutions to interior flooding.
- Studies performed in 1965 and 1984 recommended flood control based solutions. Economic benefits were not sufficient to justify a federal project.
- 1993-1996 area experienced severe flooding

Re-evaluation

- 1997 Corps directed by Congress re-evaluate 1984 Report solutions.
- Intuitively it was recognized that flood control based solutions again would fail the economic test.
- A new approach was needed.



New Approach

Ecosystem Restoration That Achieves Flood Damage Reduction

Study Goals

- **Flood Damage Reduction**
  - **Re-establishment of Natural Flood Pulse**
- **Ecosystem Restoration**
  - **Wetland/Habitat Enhancement and Protection**
  - **Open space preservation**
  - **Restoration of bio-diversity**
- **Sediment Load Reduction**

Existing Flood Control System

- Upland tributaries and streams which are in their natural state
- Altered hydrology with man made canals/drainage ditches
- Gravity drains through levee
- Pumping stations at canals/ditches and at the main line levee

Existing Ecosystem Features

- Segmented, farmed and degraded wetlands.
- Loss of bio-diversity for habitat.
- Altered and manipulated hydrology.
- Bisected riparian corridors.
- Degraded water quality.
- Upland stream bank degradation.

Low Quality Wetlands

Riparian Corridors

Project Complexities

Urban Setting

Conflicts in Land Use

- Rapid Development
- Cultural Resources
- Unique Agricultural

Study Approach

- Establish Environmental Restoration Goals using Pre-Settlement Conditions.
- Determine Flood Damage Reduction Benefits with the Environmental Project.
- Evaluate Sediment Impact With and Without Project.

Study Methodology

- Using bio-diversity goals and hydraulic flood plain characteristics, develop diversion and detention alternatives which achieve wetlands/habitat goals while providing flood control.
- Seek solutions in the uplands and in the bottoms for sediment removal.

Quantifying Benefits

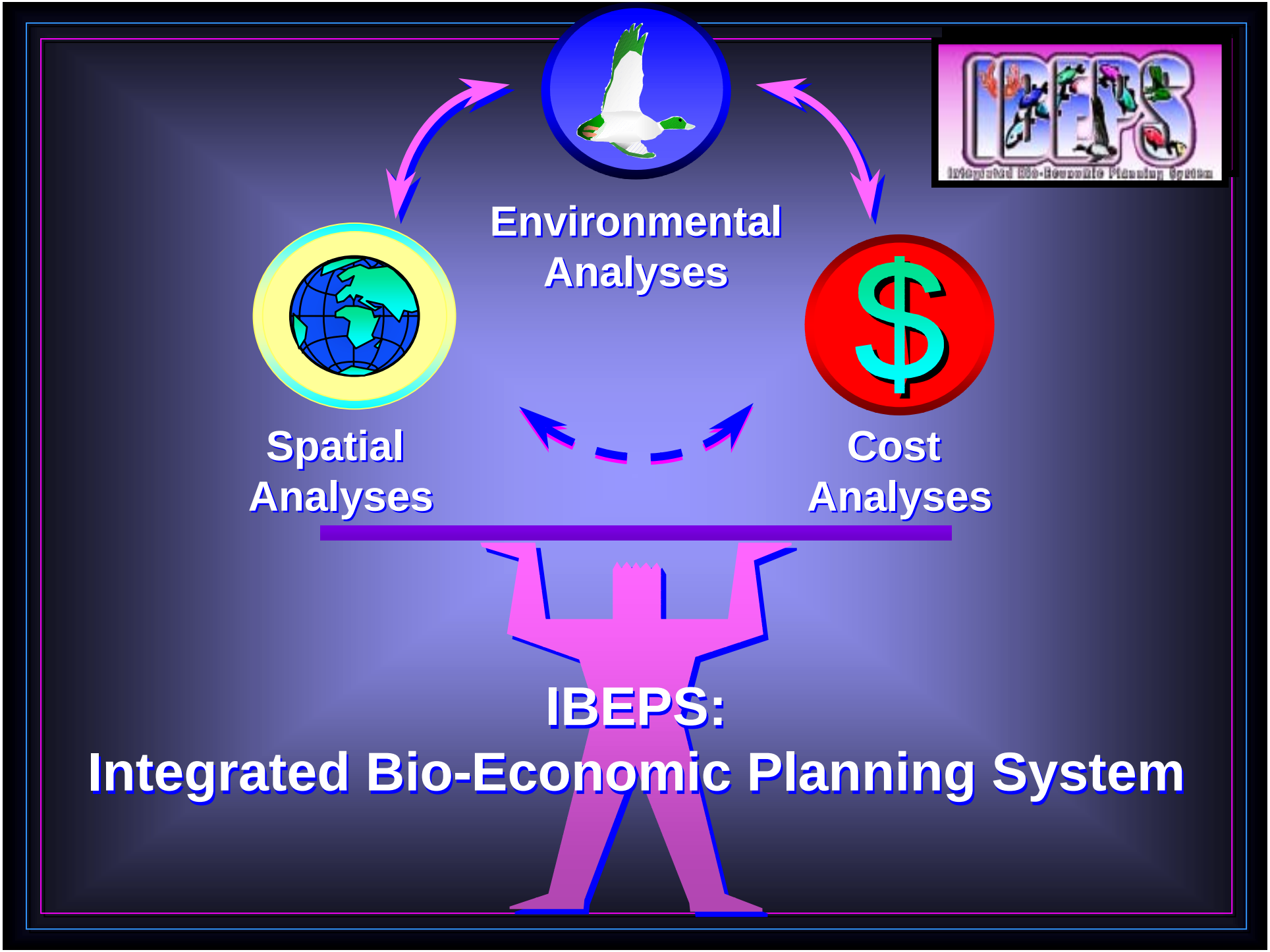
- Habitat Evaluation Procedures (HEP)
- HydroGeoMorphic Approach (HGM)
- Traditional Flood Damage Reduction Assessment

Quantifying Benefits
Selected Species

- **Habitat Evaluation Procedures (HEP)**
  - Great Blue Heron
  - Marsh Wren
  - Mink
  - Wood Duck
  - Fox Squirrel
  - Slider Turtle
  - Black Crappie
  - White Crappie
  - Eastern Meadowlark

Quantifying Benefits
Wetlands

- HydroGeoMorphic Approach (HGM)
  - Wildlife Habitat Maintenance
  - Organic Carbon Export
  - Maintain Characteristic Plant Community
  - Water Quality
  - Internal Nutrient Cycling
  - Flood Water Detention/Precipitation Detention


Environmental
Analyses
Spatial
Analyses
Cost
Analyses
IBEPS:
Integrated Bio-Economic Planning System

Alternatives Under Analysis

- Old Cahokia Creek Restoration
- Judy's/Burdick Branch
- Brushy Lake
- Spring/Indian Lake and St. Clair Farms
- Mullens Slough
- Dobrey Slough
- Elms Slough
- 180+ Upland Dry Detention Basins

Sediment Load Reduction

- Analyze sources of sediment
- Identify methods to remove sediment based on source
- Look at environmental techniques for stream bank stabilization
- Design demonstration project to validate assumptions

AGGRESSIVE PARTNERING

- Local Support - Metro East Storm Water Committee
- Illinois Department of Natural Resources
- Illinois Department of Transportation
- State Historic Preservation Office
- Environmental Protection Agency - Region V
- Natural Resources Conservation Service
- U.S. Fish and Wildlife Service
- Illinois Department of Agriculture
- Corps of Engineers Waterways Experiment Station

Achieve Goals

- **Ecosystem Restoration**
  - Wetland/Habitat Enhancement and Protection Consistent with Study Goals
  - Open space preservation
  - Restoration of bio-diversity
- **Flood Damage Reduction**
  - Re-establishment of Natural Flood Pulse
- **Sediment Load Reduction**

QUESTIONS?